

AMENDMENTS TO THE SPECIFICATION

In the Specification:

Please amend the specification as shown:

Please replace paragraph [0013] with the following amended paragraph:

(3) differential pressure measured by a differential pressure measuring method is in a range of 60 to 120 mmHg , and ratio of quantity of electric charge of catalytic material of the cathode catalytic layer existing in a proton conductive passage from the polymer electrolyte membrane measured by a cyclic voltammetric method is not less than 15% to the quantity of electric charge of all the catalytic material existing in the cathode catalytic layer.

Please replace paragraph [0020] with the following amended paragraph:

(4) differential pressure measured by a differential pressure measuring method is in a range of 60 to 120 mmHg , and ratio of quantity of electric charge of catalytic material of the cathode catalytic layer existing in a proton conductive passage from the polymer electrolyte membrane measured by a cyclic voltammetric method is not less than 15% to the quantity of electric charge of all the catalytic material existing in the cathode catalytic layer.

Please replace paragraph [0029] with the following amended paragraph:

differential pressure of the anode diffusion layer and the cathode diffusion layer measured by a differential pressure measuring method is in a range of 60 to 120 mmHg ;

Please replace paragraph [0037] with the following amended paragraph:

In the present invention, differential pressure measured by a differential pressure measuring method must be in a range of 60 to 120 mmHg . FIG. 4 is a graph

showing a relationship of differential pressure of the anode diffusion layer and voltage decrease. As is clear from FIG. 4, if the differential pressure of the anode diffusion layer is in a range of 60 to 120 mmHg , voltage decrease is not more than 30 mV, and desirable voltage efficiency is exhibited. On the other hand, if the differential pressure is above 120 mmHg , gas supplying property is deteriorated, and fuel shortage area is increased. If the differential pressure is below 60 mmHg , supplying protons only by electrolysis of water is not sufficient since the water exhausting property is high, and corrosion reaction of carbon material in the anode is promoted. The differential pressure measuring method mentioned herein is a method in which anode diffusion layer is set and held at mid-stream of a gas flow passage, a predetermined flow amount of reaction gas is flowed, pressures in front of and behind the anode diffusion layer are measured, and the difference in the pressures is calculated.

Please replace paragraph [0042] with the following amended paragraph:

Also, in this embodiment, according to the same reason mentioned above, it is necessary that the differential pressure measured by the differential pressure measuring method be in a range from 60 to 120 mmHg . FIG. 9 is a graph showing a relationship of the differential pressure of the anode diffusion layer and the voltage decrease.

Please replace paragraph [0047] with the following amended paragraph:

Also in this embodiment, differential pressure of the cathode and anode measured by the differential pressure method must be in a range of 60 to 120 mmHg . FIG. 16 is a graph showing a relationship of the differential pressure of the cathode diffusion layer and voltage decrease, and FIG. 17 is a graph showing a relationship of the differential pressure of the anode diffusion layer and voltage decrease. As is clear from FIGS. 16 and 17, if the differential pressure of the cathode diffusion layer and the anode diffusion layer is in a range of 60 to 120 mmHg , voltage decrease is not more than 30 mV, and desirable voltage efficiency is exhibited. The differential pressures of the anode diffusion layer and the cathode diffusion layer

are closely associated with each other; for example, even if the water absorption ratio of anode diffusion layer at 60° C. is in an appropriate range, gas diffusion water amount cannot be efficiently controlled in the case in which the differential pressure of the cathode diffusion layer is not in an appropriate range.